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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/537,489

06/03/2005

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Q88348

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23373 7590 02/12/2008  
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EXAMINER

KALAM, ABUL

ART UNIT

PAPER NUMBER

2814

MAIL DATE

DELIVERY MODE

02/12/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/537,489	<b>Applicant(s)</b> KIMURA, AKITAKA	
	<b>Examiner</b> ABUL KALAM	<b>Art Unit</b> 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 June 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 1-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11, 12 and 15 is/are rejected.
- 7) ☒ Claim(s) 13 and 14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/3/05, 9/7/06</u> .  | 6) <input type="checkbox"/> Other: _____                          |

### DETAILED ACTION

1. Applicant's election without traverse of Group II, claims 11-15, in the reply filed on November 1, 2007, is acknowledged.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 11, 12 and 15** rejected under 35 U.S.C. 103(a) as being unpatentable over Takashi (JP 2000-164925 (translation); cited by Applicant).

Regarding **claim 11**, Takashi teaches a method of manufacturing a semiconductor light emitting device (¶ [0029]-[0030], comprising:

forming a light emitting layer ("luminous layer," ¶ [0032]) composed of a Group III nitride semiconductors (GaInN, ¶ [0032]) on a substrate by a vapor phase deposition method (MOCVD, ¶ [0015]), by using a doping gas (oxygen, ¶ [0015]) containing an element in Periodic Table Group 6B, and a mixed gas including a Group III precursor gas ("organic indium compound," ¶ [0015]) and a nitrogen source gas (nitrogen, ¶ [0015]).

Thus, Takashi teaches all the limitations of the claim with the exception of explicitly disclosing wherein a molar flow rate of the doping gas is made excessive more than a molar flow rate of the Group III precursor gas.

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Although Takashi does not disclose the flow rates, Takashi does teach that an oxygen atom concentration of the light emitting layer was set to about  $2 \times 10^{19} \text{ cm}^{-3}$  and the carrier concentration was set to about  $8 \times 10^{17} \text{ cm}^{-3}$  (§ [0032]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have a higher molar flow rate of the oxygen as compared to the Group III precursor gas, in order to set the high oxygen concentration described by Takashi.

Furthermore, note that Applicant has not disclosed the criticality of such a relationship between the claimed molar flow rates. Indeed, it has been held that mere dimensional limitations are *prima facie* obvious, absent a disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical. See, for example, *In re Rose*, 220 F.2d 459, 105 USPQ 237 (CCPA 1955); *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984); *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966). See also MPEP 2144.04(IV)(B).

Regarding **claim 12**, Takashi discloses wherein the step of forming said light emitting layer (§ [0032]) is executed after forming Group III nitride semiconductor layers containing an element in Periodic Table Group 4B (Si, § [0030]) as an impurity on said substrate by a vapor phase deposition method (§ [0030]).

Regarding **claim 15**, Takashi disclose wherein the doping gas containing an element if the periodic table Group 6B is oxygen.

***Allowable Subject Matter***

3. **Claims 13 and 14** objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding **claim 13**, the prior art of record neither anticipates nor renders obvious all the limitations of the claim including: wherein a film-forming gas used for forming the Group III nitride semiconductor layers is purged, and then, the light emitting layer is formed.

Regarding **claim 14**, the prior art of record neither anticipates nor renders obvious all the limitations of the claim including: wherein the doping gas is introduced at the time of forming said barrier layers of said light emitting layer.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ABUL KALAM whose telephone number is (571)272-8346. The examiner can normally be reached on Monday - Friday, 9 AM - 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael M. Fahmy can be reached on 571-272-1705. The

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fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. K./  
Examiner, Art Unit 2814

/Wael M Fahmy/  
Supervisory Patent Examiner, Art  
Unit 2814